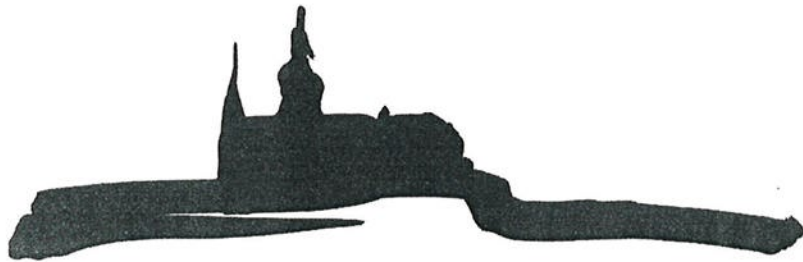


33^{èmes} Journées des Actinides

Prague, 27-29 April 2003



Programme and Abstracts



33^{èmes} Journées des Actinides, 27. – 29. April 2003, Prague

CONFERENCE ORGANIZATION

The conference “*33^{èmes} Journées des Actinides*“
is organized by the *Department of Electronic Structures,*
Faculty of Mathematics and Physics, Charles University in Prague.

It is supported by the EU project HPCF-00320
within the program High Level Scientific Congresses.

ORGANIZING COMMITTEE

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- G. H. Lander (Karlsruhe)
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- R. Troć (Wroclaw)

33^{èmes} Journées des Actinides

PROGRAM

All events in hotel Krystal

SATURDAY, 26. April

16.00 – 20.00 Registration

18.30 – 21.30 Welcome party

SUNDAY, 27. April

8.20 OPENING

SESSION I

Chairman: **M.S.S. Brooks**

8.30 **Su-01:** *Pu photoemission studies at LANL*

T. Durakiewicz, J.J. Joyce, J.M. Wills, M.T. Butterfield, E. Guzewicz, A. Arko, J. Sarrao, L. Morales, D.P. Moore

8.55 **Su-02:** *Electronic structure of PuSi_x films studied by photoemission*

T. Gouder, R. Eloirdi, F. Wastin, P. Boulet, J. Rebizant, F. Huber

9.20 **Su-03:** *The failure of Russell-Saunders coupling in the 5f states of plutonium*

K. Moore, M. Wall, A. Schwartz, B.W. Chung, D.K. Shuh, R.K. Schulze, J.G. Tobin

9.45 **Su-04:** *Intermediate valence of plutonium chalcogenides as evidenced by photoemission*

P. Wachter

10.10 – 10.30 COFFEE BREAK

SESSION II

Chairman: **G. Amoretti**

10.30 **Su-05:** *Electronic structure comparison of U_xPd_{100-x} and U_xAg_{100-x} films prepared by sputter deposition in Ar atmosphere*

R. Eloirdi, T. Gouder, F. Huber, F. Wastin, J. Rebizant

10.55 **Su-06:** *A photoemission study of UO/UC and UO/UN ternaries, prepared as thin films*

M. Eckle, T. Gouder, F. Wastin, J. Rebizant

11.20 **Su-07:** *Electronic structure of U/W(110)-surfaces*

I. Opahle, M. Richter, K. Koepernik, H. Eschrig, L. Berbil-Bautista, T. Hänke, M. Getzlaff, R. Wiesendanger

- 11.45 **Su-08:** *Optical and magneto-optical investigations on $U_xLa_{1-x}S$ single crystals*
M. Broschwitz, M. Marutzky, D. Menzel, J. Schoenes, O. Vogt, K. Mattenberger
- 12.10 **Su-09:** *Optical properties of $UPtGe$ single crystals*
J. Schoenes, U. Barkow, M. Marutzky, H. Schröter, R. Troć, T. Komatsubara

12.35 – 14.00 LUNCH

SESSION III

Chairmen: **M. Almeida**, **M. Divis**

- 14.00 **Su-10:** *Syntheses and characterization of the actinide selenides $ThMnSe_3$ and $UMnSe_3$*
I. Ijjaali, K. Mitchell, J.A. Ibers
- 14.25 **Su-11:** *Structure and Physical Behaviour of β - UB_2C*
V.H. Tran, P. Rogl, G. André, F. Bourée
- 14.50 **Su-12:** *New Ternary Compounds in the U-Co-Al System at 900°C.*
O. Tougait, V. Zaremba, J. Stêpieò-Damm, R. Troć and H. Noël
- 15.15 **Su-13:** *Physics of anisotropic itinerant 5f-electron metamagnets $UCo_{1-x}T_xAl$ ($T = Fe, Ni$)*
N.V. Mushnikov, A.V. Andreev, V. Sechovský, T. Goto, H. Yamada
- 15.40 **Su-14:** *Magnetization density in UFe_2*
M.S.S. Brooks
- 16.05 **Su-15:** *Spin and orbital magnetic state of UGe_2 under the pressure.*
A.B. Shick, V. Janiš, W.E. Pickett

16.30 – 19.00 COFFEE BREAK + POSTERS

19.30 DINNER

MONDAY, 28 April

SESSION IV

Chairman: **D. Geeson**

- 8.30 **Mo-01:** *Towards a better energy resolution of alpha liquid scintillation cocktails applied for environmental analyses*
J. Aupiais, C. Aubert, J.C. Mialocq, A. Reboli
- 8.55 **Mo-02:** *Impact of thermodynamic data choice on actinides speciation in environmental conditions*
L. Bion
- 9.20 **Mo-03:** *Ab initio modelling of actinide oxides: stability of point defects and fission products in nuclear fuels*
M. Freyss, T. Petit, J.P. Crocombette

9.45 **Mo-04:** *Investigations on actinide compounds for nuclear fuels for the future*
M. Beauvy, P. Martin, P. Trocellier

10.10 – 10.30 COFFEE BREAK

SESSION V

Chairman: **J. A. Paixão**

10.30 **Mo-05:** *Neutron and photon studies of uranium/iron multilayers*

A. M. Beesley, M.F. Thomas, L. Bouchenoire, S. D. Brown, A.D.F. Herring,
G.H. Lander, S. Langridge, W.G. Stirling, R.C.C. Ward, M.R. Wells,
S.W. Zochowski

10.55 **Mo-06:** *Inelastic neutron polarimetry detection of magnetic excitation symmetries in uranium dioxide*

o E. Blackburn, R. Caciuffo, P.J. Brown, N. Bernhoeft, G.H. Lander

11.20 **Mo-07:** *Inelastic neutron scattering study of magnetic excitations in uranium phosphates*

N. Magnani, G. Amoretti, A. Blaise, R. Caciuffo, N. Dacheux, M. Genet,
J.A. Stride, D.T. Adroja

11.45 **Mo-08:** *Quadrupolar phase transitions and a new model for the crystal fields in UPd₃*

K.A. McEwen

12.10 **Mo-09:** *Defect based spin mediation in δ phase plutonium*

M.J. Fluss

12.35 – 14.00 LUNCH

SESSION VI

Chairman: **F. Wastin**

14.00 **Mo-10:** *Magnetic properties and structure of sputter-deposited UN layers*

o L. Havela, D. Rafaja, F. Wastin, E. Colineau, R. Kužel, T. Gouder

14.25 **Mo-11:** *Crystal structures of actinide elements at high pressures*

o A. Lindbaum, S. Heathman, R. G. Haire, T. Le Bihan, M. Idiri

14.50 **Mo-12:** *Electron transport studies of UCu₅Al and U_{1-x}Th_xCu₅Al*

o V.H. Tran, J. C. Griveau, R. Troć, J. Rebizant, F. Wastin

15.15 **Mo-13:** *Abnormal magnetic behaviour in NpFe₄Al₈*

o A.P. Gonçalves, M. Almeida, C. Cardoso, T. Gasche, F. Wastin, P. Boulet, E. Colineau,
J. Rebizant

15.40 **Mo-14:** *Heat capacity investigations of multi-k configurations in UAs_{0.8}Se_{0.2}*

o P. Javorsky, G. H. Lander, J. A. Paixão, C. Detlefs, N. Bernhoeft

16.05 – 18.00 COFFEE + POSTERS

18.00 – 19.00 ROUND TABLE
98445 photo

19.30 DINNER

TUESDAY, 29. April

SESSION VII

Chairman: P. Moisy

8.30 Tu-01: *Spectroscopic aspects of complex formation of uranyl with crown ethers and crown ether analogues*
S. De Houwer, K. Servaes, C. Görller-Walrand

8.55 Tu-02: *Unravelling the influences on induction time for uranium hydriding: The influence of oxide thickness*
R.M. Harker

9.20 Tu-03: *Chemical, structural and electrical studies of layered alkali uranyl vanadates*
S. Obbade, C. Dion, M. Saadi, F. Abraham

9.45 Tu-04: *Uranium and plutonium partitioning in polyphase ceramics*
S.V. Stefanovsky, O.I. Kirjanova, A.G. Ptashkin, S.V. Yudintsev

10.10 – 10.30 COFFEE BREAK

SESSION VIII

Chairman: W. Suski

10.30 Tu-05: *Superconductivity in PuCoGa₅*
J.D. Thompson, J.L. Sarrao, L.A. Morales, F. Wastin, J. Rebizant, P. Boulet,
E. Colineau, G.H. Lander

10.55 Tu-06: *Electronic structure investigations of the new Pu-based superconductor PuCoGa₅*
I. Opahle, P.M. Oppeneer

11.20 Tu-07: *Properties of PuRhGa₅, a new Pu-based superconductor above 8K*
F. Wastin, D. Bouëxière, P. Boulet, E. Colineau, J.C. Griveau, J. Rebizant

11.45 Tu-08: *Magnetic properties of NpCoGa₅*
E. Colineau, P. Boulet, F. Wastin, J. Rebizant

12.10 Tu-09: *Superconducting critical field of americium up to 25 GPa.*
J.C. Griveau, J. Rebizant, G.H. Lander

12.35 – 14.00 LUNCH

SESSION IX

Chairman: **R. Troć**

14.00 **Tu-10:** *X-ray magnetic circular dichroism of uranium intermetallics*

F. Wilhelm, N. Jaouen, A. Rogalev, J. Goulon, A.V. Andreev, V. Sechovský,
G. Schmerber, J.-P. Kappler

14.25 **Tu-11:** *Magnetic properties of PuGa₃*

P. Boulet, E. Colineau, F. Wastin, J. Rebizant

14.50 **Tu-12:** *Phonon dispersions determination in δ fcc Pu-Ga alloy*

J. Wong, M. Krisch, D. Farber, F. Occelli, M. Holt, H. Hong, M. Wall,
A.J. Schwartz, P. Zschack, T.-C. Chiang

15.15 **Tu-13:** *Specific heat measurements on transuranium systems at ITU Karlsruhe*

P. Javorský, J. Rebizant, P. Boulet, G. Stewart, F. Wastin

FINAL SESSION

Chairman: **O. Vogt**

15.40 – 16.20 *Conference summary*

G. Lander, H. Noël

20.00 **BANQUET**

~~14~~
15
+ 14
+ 13

42 orals

16 ITU

POSTERS

SUNDAY, 27. April 16:05 – 18.00

Chairman: **P. Javorský**

MONDAY, 28. April 16.05 – 19.00

Chairman: **M. Diviš**

- P-01 *The Actinide User Laboratory at ITU-Karlsruhe*
F. Wastin, G.H. Lander
- P-02 *New high pressure, angular dispersive X-ray diffraction facilities at Institute for Transuranium Elements, Karlsruhe*
P.S. Normile, S. Heathman
- P-03 *High-pressure behaviour of plutonium superconductors PuCoGa₅ and PuRhGa₅*
J. C. Griveau, P. Boulet, F. Wastin, J. Rebizant
- P-04 *Magnetic, magnetoelastic and other electronic properties of a UIrAl single crystal*
A.V. Andreev, N.V. Mushnikov, F. Honda, V. Sechovský, P. Javorský, T. Goto
- P-05 *Magnetic properties of UPdSiH_{1.0} and UNiSiH_{1.0} under extreme conditions*
A.V. Kolomiets, K. Miliyanchuk, L. Havela, A.V. Andreev, S. Heathman, T. Goto
- P-06 *On the magnetic structure of UIrGe*
K. Prokeš, H. Nakotte, V. Sechovsky, M. Mihalik
- P-07 *Effect of pressure on magnetic properties of ThFe₁₁C_x*
Z. Arnold, O. Isnard, J. Kamarád
- P-08 *High pressure studies of uranium hydride – UH₃*
I. Halevy, S. Salove, S. Zalkind, I. Yaar
- P-09 *Effect of pressure and magnetic field on the magnetism of a U(Ni_{0.91}Pd_{0.09})₂Si₂ single crystal*
F. Honda, A.V. Andreev, J. Kamarád, P. Svoboda, K. Prokeš, G. Oomi, V. Sechovský
- P-10 *Magnetocaloric effect in UNi₂Si₂*
P. Svoboda, V. Sechovský, A.A. Menovsky
- P-11 *Noncollinear magnetism: Ab-initio calculations of NpFe₄Al₈*
C. Cardoso, T. Gasche, M. Godinho
- P-12 *Thermodynamic modelling of light-actinide elements*
G. Makov, E. Brosh, R. Z. Shneck
- P-13 *Fermi surface studies of UGa₃ – positron annihilation experiment and ab-initio calculations*
J. Ruzs, M. Biasini

- P-14 *Exchange coupling in Eu chalcogenides*
J. Kuneš, W. Ku, W.E. Pickett
- P-15 *Magnetovolume effect in RCo₂ compounds (R = Gd, Dy, Er) from ab initio calculations*
I. Turek, J. Ruzs, M. Diviš
- P-16 *Phonon dispersion in uranium measured using inelastic X-ray scattering*
M.E. Manley, G.H. Lander, H. Sinn, A. Alatas, W.L. Hults, R.J. McQueeney, J.L. Smith, J. Willit
- P-17 *Polarization analysis study of crystal field levels in CePtSn*
B. Janoušová, J. Kulda, M. Diviš, V. Sechovský, T. Komatsubara
- P-18 *Photoemission investigation of AnSb and AnTe single crystals (An = U, Np, Pu)*
T. Durakiewicz, G.H. Lander, J.J. Joyce, E. Guzewicz, M.T. Butterfield, A. Arko, J. Sarrao, L. Morales, F. Wastin, J. Rebizant
- P-19 *Resonant magnetic X-ray diffraction study of the UP_{1-x}S_x system*
V.H. Rodrigues, J.A. Paixão, M.R. Costa, G.H. Lander, D. Mannix, O. Vogt
- P-20 *Energy structure of the 6d5f first excited configuration in U⁴⁺*
J.C. Krupa, V.N. Makhov, M. Kirm, N.Yu. Kirikova, G. Zimmerer, J.Y. Gesland
- P-21 *Magnetism of anions in uranium compounds: XMCD studies*
A. Rogaley, F. Wilhelm, N. Jaouen, J. Goulon, N. Kernavanois, J.P. Sanchez
- P-22 *Electron-phonon coupling strengths and line broadening studies of U³⁺ and Nd³⁺ in LaCl₃, U³⁺ in LaBr₃ and U³⁺ and U⁴⁺ ions in RbY₂Cl₇ single crystals*
M. Karbowski, M. Sobczyk, J. Drozdowski
- P-23 *Magnetization and Mössbauer-effect study of UNi_{1-x}Co_xGa solid solutions*
V.I. Krylov, N.N. Delyagin, A.V. Andreev, V. Sechovský, J. Vejpravová, S. I. Reyman, I.N. Rozantsev, M. Dopita
- P-24 *Magnetic, electrical and thermodynamic properties of the UCu₅Al₇ derivatives*
W. Suski, A. Czopnik, M. Solyga, K. Wochowski, G. Bednarczyk
- P-25 *X-ray investigation of Th₃M₂M'₃ alloys*
V. Kavečanský, P. Rogl, H. Noël, M. Mihalik, K. Wochowski, R. Troć
- P-26 *Phonon, electronic and magnetic contribution to the specific heat of UGe₂*
R. Troć, A. Czopnik, K. Wochowski
- P-27 *Transport and magnetic studies of new ternary compounds of the U-Co-Al system*
R. Troć, H. Noël, O. Tougait, K. Wochowski
- P-28 *Hall effect in the ferromagnet UGe₂*
V.H. Tran, S. Paschen, R. Troć, M. Baenitz, F. Steglich

- P-29 *Crystallographic and magnetic characterization of the uranium intermetallic compound UFe_7Al_5*
A.P. Gonçalves, J.C. Waerenborgh, M. Almeida, H. Noël
- P-30 *Resistivity studies in $NpFe_4Al_8$*
A.P. Gonçalves, M. Almeida, F. Wastin, P. Boulet, E. Colineau, J. Rebizant
- P-31 *Magnetic properties of $R_2T_{13.6}Si_{3.4}$ ($R = U, Lu; T = Fe, Co$)*
A.V. Andreev, Y. Homma, Y. Shiokawa
- P-32 *Crystal structure and magnetism of a new ternary intermetallic phase $UNi_{1-x}Ge_{1+x}$ ($0.33 < x < 0.70$)*
A. Perricone, M. Potel, H. Noël
- P-33 *Preparation of thin films of uranium and UH_3 , and their magnetic properties*
D. Kolberg, R. Eloirdi, T. Gouder, F. Wastin, J. Schoenes
- P-34 *Phase transformations in delta stabilised plutonium*
S. Kitching, P.G. Planterose, D.C. Gill, R.F.E. Jenkins
- P-35 *Normal-state and superconducting properties of UBe_{13}*
N. Oeschler, R. Kuechler, T. Cichorek, P. Gegenwart, F. Kromer, F. Steglich, G.R. Stewart, H.R. Ott
- P-36 *Magnetic, transport and electronic properties of UNi_2*
S. Maťaš, Mar. Mihalik, Mat. Mihalik, K. Prokeš
- P-37 *Magnetic and electrical transport properties of $UPdSb$ and UPd_2Sb*
K. Gofryk, D. Kaczorowski
- P-38 *Magnetic properties of a $DyNiAl$ single crystal*
J. Prchal, A.V. Andreev, N.V. Mushnikov, F. Honda, P. Javorský, T. Goto, K. Jurek
- P-39 *Determination of the absolute mobility and the equivalent ionic conductivity of NpO_{+2} at $25^\circ C$ and at infinite dilution by CE/ICPMS*
J. Aupiais, A. Delorme, N. Baglan
- P-40 *Formation constants of phosphotungstate and silicotungstate complexes of f elements*
L. Bion, P. Moisy, C. Moulin
- P-41 *Actinide heterobimetallic oxides (Th, U). Reduction studies and catalytic behavior*
C.J. Dias, J. Branco, A.P. Gonçalves, T. Almeida Gasche, A. Pires de Matos
- P-42 *Investigation of $Pu(IV)$ Complexation by TcO_4^- Anion in perchloric media*
Ph. Moisy, L. Abiad, P. Blanc, C. Madic, P. Turq
- P-43 *Preliminary data on $Np(IV)$ and $Pu(IV)$ behavior in room temperature ionic liquids*
Ph. Moisy, S. I. Nikitenko
- P-44 *Importance of radionuclide speciation studies - modelling and analytical methods*
S. Frelon, F. Paquet

- P-45 *Radioactive minerals – natural analogs of actinide-loaded host phases*
T.S. Ioudintseva
- P-46 *Chemical, structural and electrical investigation of two new layered alkali uranyl tungstates $M_2(UO_2)_2(WO_3)O$ with $M = K, Rb$*
S. Obbade, S. Yagoubi, C. Dion, M. Saadi, F. Abraham.
- P-47 *Crystal structure and conductivity properties of some alkaly uranyl niobates, $ANbUO_6$ ($A = Na, K$) and $ANb_2U_2O_{11.5}$ ($A = Rb, Cs$).*
S. Obbade, S. Surble, C.Dion, F. Abraham
- P-48 *Phase compositions of Pu-doped ceramics prepared by various methods*
A.G. Ptashkin, S.V. Stefanovsky, S.V. Perevalov, S.V. Yudintsev
- P-49 *Study of actinide-loaded pyrochlore-based matrices*
S.V. Yudintsev, T.S. Ioudintseva, S.A. Perevalov, S.V. Stefanovsky
- P-50 *Alteration of depleted uranium metal*
E.R. Trueman, S. Black, D. Read, M.E. Hodson
- P-51 *Influence of relativistic effects on hydrolysis of Ac^{3+}*
B. Wlodzimirska, A. Bilewicz
- P-52 *Spectroscopic study of sol-gel glasses doped with uranyl and uranyl complexes*
K. Servaes, K. Binnemans
- P-53 *High resolution magnetization measurements of superconductors*
Z. Janů, M. Novák, G. Tsoi